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EXAMINER

SERROU, ABDELALI

ART UNIT PAPER NUMBER

2626

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/081,177

Applicant(s)

HECK, LARRY PAUL

Examiner

Abdelali Serrou

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 07 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14, 16-20 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-20 and 22-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/10/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed on 03/07/2006, in response to the office action from 12/08/2005, have been fully considered but they are moot in view of the new ground(s) of rejection.
2. As per claim 23, Applicant admits that Sharma discloses "certain scores" (Remarks, page 10), but he is not sure if they are speaker verification scores or speech recognition scores. Applicant asserts that the scores cannot be both speech recognition and speaker verification scores. Examiner respectfully disagrees and notes that Sharma teaches speech recognition (col. 4, lines 32-35, wherein the user speaks a password into the system for verification), and teach also, speaker or voice verification (col. 3, lines 41-51, wherein the system uses extracted features of the user's voice for speaker verification).

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1, 7, 17, 23, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recitation is **vague and indefinite** about how using the combined speaker verification and speech recognition score is going to help determine a different best speech recognition hypothesis among alternative candidates. For, it is unclear how the best speech recognition hypothesis, chosen based on the speech recognition scores

Art Unit: 2626

alone, will be changed by what the speaker verification score is. Only score values rather than the relative ranking of speech recognition hypotheses (i.e., their hierarchy) can be affected by combining the speech recognition hypothesis and speech verification scores.

Therefore the examiner interprets the recited best speech recognition hypothesis score as the score for the best alternative password.

5. Claims 1, 7, 17, 23, and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is **no written description** indicating how the speaker verification score could change the best speech recognition hypothesis hierarchy, and thus alter the best speech recognition hypothesis choice from that based on the speech recognition scores alone, for the alternative speech recognition hypotheses.

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2626

7. Claims 1-28 are rejected under 35 U.S.C 103(a) as being anticipated by Sharma et al. (Sharma) (U.S 6, 539, 352, issued March 25, 2003) in view of Bi et al. (Bi) (U.S 6, 836, 758 filed on Jan. 9, 2001 and issued on Dec. 28, 2004).

8. As per claims 1, 7, 11, 23, and 26 Sharma teaches a system, method, and a machine-readable medium that comprise:

receiving a first (enrollment) utterance from an intended talker (user during enrollment) at an integrated speech and speaker recognition system (During enrollment, the user speaks the password, which is sampled by the system, column 3, line 27, 28);

generating a voice characteristic model for the user (Feature extraction is then performed to extract features of the user's voice for voice characteristics modeling, column 3, line 41, 42);

receiving a second (test) utterance from the intended talker at the speaker recognition system (during verification, the speaker speaks the password into the system, column 4, line 32, 33).

computing a speaker verification score based on the voice characteristic model associated with the (test) portion of speech. In the verification the "test speech" password gets processed in the same manner as the enrollment phase (column 4, line 33, 34) wherein the voice features are extracted (column 3, lines 41-43), then the "test speech" password is segmented and scored as described above in the case of the speech recognition;

computing a speech recognition score associated with the portion of speech. During the

Art Unit: 2626

process of the second utterance “test speech” (column 4, line 28) Sharma et al. teach a system that also recognizes the password phrase or the “test speech” associated with the portion of the speech (column 4, lines 27-31), segments the password into subwords and uses multiple classifiers to score the subwords (column 5, line 10, 11);

generating a combined score by combining the speaker verification score and the speech recognition score (the scores are fused or combined, column 5, line 10-12);

However, Sharma et al. do not explicitly teach selecting a best hypothesis from a plurality of hypotheses representing automatic speech recognition results of the second utterance based upon the combined score.

Bi, in the same field of endeavor do teach selecting a best hypothesis from a plurality of hypotheses representing automatic speech recognition results of the second utterance (col. 6, lines 10-24) based on both a speaker verification score and speech recognition score (col. 3, lines 54-59, and col. 2, lines 30-31).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate Bi’s feature of selecting a best hypothesis from a plurality of hypotheses representing automatic speech recognition results of the second utterance based upon the combined scores to the system of Sharma et al., because Bi teaches that this would provide a system with better recognition accuracy and lower rejection rates than using the results of only one of the engines (col. 3, lines 64-67).

Art Unit: 2626

9. As per claims 2, 9, 12 and 18, based on the rejection used above, Sharma teaches processing a portion of speech of the utterance received from the user, wherein the portion of the speech includes a word (password phrase, column 4, line 65).

8. As per claims 3, 10, 13, and 19 Sharma teaches altering a search path in Viterbi search used by the speech recognizer (Viterbi or Dynamic programming (DP) based algorithms are used to locate the optimal boundaries for the subword segments, column 15, lines 55-57).

10. As per claims 4, 14, and 20 Sharma teaches the use of a hotword speech recognition to identify the talker (Key word/key phrase spotting is used to optimally locate the password, column 2, line 60-61).

11. As per claims 6, 16, and 22 Sharma teaches voice feature (characteristic) extraction wherein voice characteristics include voice print, stored in a voice print database (column 6, line 36), a personal profile (column 3, lines 38-40) and linguistic characteristics that are unique to the talker voice inherent in (Feature extraction is then performed to extract features of the user's voice, such as pitch, spectral frequencies, intonations, column 3, lines 41-43).

12. As per claim 8, Sharma teaches a speech input device that comprises cellular, analog, and digital phone, and voice over internet protocol device (The enrollment speech may be obtained via a receiver, telephone or other sources, and be received from any transmission media, digital or analog, including terrestrial links, land lines, satellite, microwave, column 6, lines 44-48).

Art Unit: 2626

13. As per claim 24, Sharma teaches a voice characteristic model such as pitch, spectral frequencies, and intonations (column 3, lines 42, 43) that are stored in a voice print database (column 3, line 48, 49) that will serve as model database during verification phase.

14. As per claim 25, Sharma teaches a method of obtaining the voice characteristic from the enrollment speech (necessarily including a first portion of the utterance).

15. As per claim 27, since Sharma teaches a CPU for speech recognition and verification (column 6, line 63), the system necessarily includes a speech server that comprises the software entities to execute the application. Furthermore, to able to process the input speech, a processor, memory, and a bus are necessary in the system in order to store the software entities and process the speech.

16. As per claim 28, Sharma teaches an inherent database connected to the speech server wherein the voice characteristic model of the talker is stored (An enrollment component is used to characterize a known user's voice and store the characteristics in a database, so that this information is available for future comparisons, column 3, lines 23-25).

### *Conclusion*

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Weideman (U.S 6,292,782) teach speech and voice recognition and verification.



Art Unit: 2626


Garudadri et al. (U.S 6,671,669) teach combined engine system and method for voice recognition.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelali Serrou whose telephone number is 571-272-7638. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis I. Smits can be reached on 571-272-7628. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Serrou  
3/30/2006



TĀLIVALDIS IVARS ŠMITS  
PRIMARY EXAMINER